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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/610,722	07/06/2000	Suresh Krishna	BRCMP005	5437

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EXAMINER
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COLIN, CARL G

ART UNIT	PAPER NUMBER
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2136

14

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/610,722

Applicant(s)

KRISHNA ET AL.

Examiner

Carl Colin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4, 7-11. 6) ☐ Other:

### DETAILED ACTION

1. Pursuant to USC 131, claims 1-45 are presented for examination.

#### *Claim Objections*

2. Claim 12 is objected to because of the following informalities: it seems that there is a typo or mistake on the word "sparse". Appropriate correction is required.

#### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

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3.1 **Claims 1-15, 18-19, 21-32, 34-40, and 42-45** are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,157,955 to **Narad et al.**

3.2 **As per claims 1 and 21, Narad et al.** discloses a policy engine ASIC that meets the recitation of a cryptography acceleration chip, comprising: a classification engine configured to receive a complete IP packet and determine what keys are needed to encrypt or decrypt the packet (see column 39, line 58 through column 40, line 19).

**As per claims 34, 37, and 42-45, Narad et al.** discloses a network line card and a network service module, comprising: a cryptography acceleration chip (see column 7, lines 14-32) comprising, a classification engine configured to receive a complete IP packet and determine what keys are needed to encrypt or decrypt the packet (see column 39, line 58 through column 40, line 19); local central processing unit connected with said chip, local memory connected with said chip, network interface unit connected with said chip, and system interface unit connected with said chip. (See column 7, lines 14-32 and figures 3 and 4).

**As per claim 40, Narad et al.** discloses a network communication device, comprising: a central processing unit; a system memory; a network interface unit; a cryptography acceleration chip comprising, a classification engine configured to receive a complete IP packet and determine what keys are needed to encrypt or decrypt the packet. (See rejection of claims 34 and 37 above). **Narad et al.** further discloses an internal bus that connects the central processing

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unit, the system memory, the network interface unit, and the cryptography acceleration chip (see column 7, lines 14-32 and figures 3 and 4).

**As per claims 2-3 and 22-23, Narad et al.** discloses the limitation of wherein said determination is accomplished by parsing fields in a header of the packet to determine a flow to which the packet belongs wherein said flow has one or more associated keys for encrypting or decrypting the packet (see column 39, line 58 through column 40, line 19).

**As per claims 4, and 24, Narad et al.** discloses the limitation of wherein said engine supports all necessary modes for IPSec security processing (see column 37, lines 15 et seq. and column 39, lines 1-43).

**As per claims 5-8, 35, and 38, Narad et al.** discloses the limitation of wherein said chip further comprises an internal local memory wherein said memory is one of a DRAM, SSRAM, and CAM (see column 37, lines 21-26) and wherein said chip further comprises an external local memory wherein said memory is one of a DRAM, SSRAM, and CAM (see column 12, lines 58-64).

**As per claims 9-11, and 26-27, Narad et al.** discloses the limitation of wherein said memory is one of a DRAM and an SSRAM, and said chip further comprises a hash-based lookup table of two layer structure, wherein said two layer hash-based lookup table comprises a hash

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map table and a result entry that meets the recitation of classification entry table (see column 40, lines 3-9).

**As per claims 12-13 and 28, Narad et al.** discloses the limitation of wherein said hash map table is parse and wherein an output of said hash map table comprises indexes into the classification entry table (see column 36, lines 59-65 and column 38, line 58 through column 39, line 20).

**As per claim 14, Narad et al.** discloses the limitation of wherein said classification entry table holds a copy of classification match fields and additional match tag information (see column 39, lines 1-32).

**As per claims 15, 29, 36, and 39, Narad et al.** discloses the limitation of wherein said internal memory is a CAM (see column 37, lines 21-30 and figure 13).

**As per claim 18, Narad et al.** discloses the limitation of wherein said chip is configured to conduct a de-correlation process (see column 14, lines 20-43; column 37, lines 20-44; and column 39, lines 1-32).

**As per claims 19 and 32, Narad et al.** discloses the limitation of wherein said packets comprise short packets (column 21, lines 10-14).

As per claim 25, Narad et al. discloses the limitation of further comprising a RAM-based hash-based classification match lookup process (see column 42, lines 60-63).

As per claim 30, Narad et al. discloses the limitation of wherein said CAM-based classification is conducted using a bit mask to reflect binarized range specifiers from an IPSec policy rule set (see column 42, lines 22-55)

As per claim 31, Narad et al. discloses the limitation of wherein a binarization and de-correlation processing precede said CAM-based classification (see column 39, lines 25-33).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4.1 **Claims 16-17, 20, 33, and 41** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,157,955 to Narad et al.

4.2 As per claim 16, Narad et al. substantially teaches using a CAM. Narad et al. further discloses a packet memory capable of holding 512 entries (see column 42, lines 60-63). Narad et al. does not explicitly state said CAM is configured to hold 128 entries. It is obvious that the internal memory can be configured to hold a smaller size of memory. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method of Narad et al. to provide a CAM configured to hold 128 entries. This modification would have been obvious because one skilled in the art would have been motivated to use a memory configured to hold 128 entries size of memory since a smaller capacity costs less.

As per claim 17, Narad et al. substantially teaches the claimed chip of claim 16. Narad et al. discloses flexible rules to be performed on set of packet fields and not limited to those fields (see columns 70-74). Narad et al. also discloses using 2 bit match type code and match tag of 32 bits (see column 37, lines 20-44 and column 42, lines 22-55).

As per claims 20, 33, and 41, voice-over-IP packets and internal bus as a high speed switching matrix are well known in the art.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure as the art discloses efficient classification of packets.



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US Patent Application Publication:

US 2003/0005144 Engel et al.

5.1 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl Colin whose telephone number is 703-305-0355. The examiner can normally be reached on Monday through Thursday, 8:00-6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 703-305-9648. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

*cc*

Carl Colin

Patent Examiner

February 9, 2004

  
AYAZ SHEIKH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100